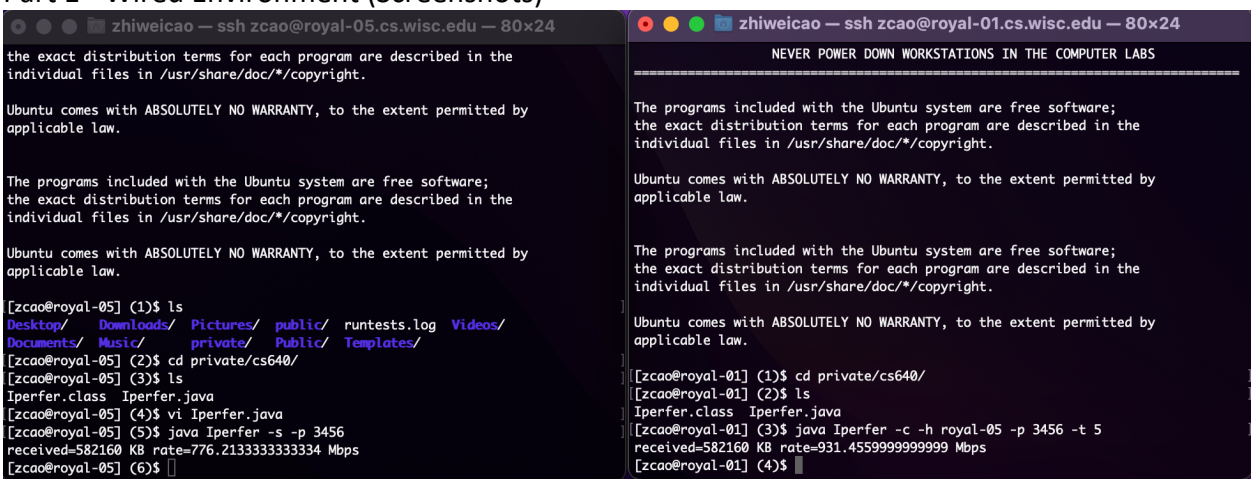
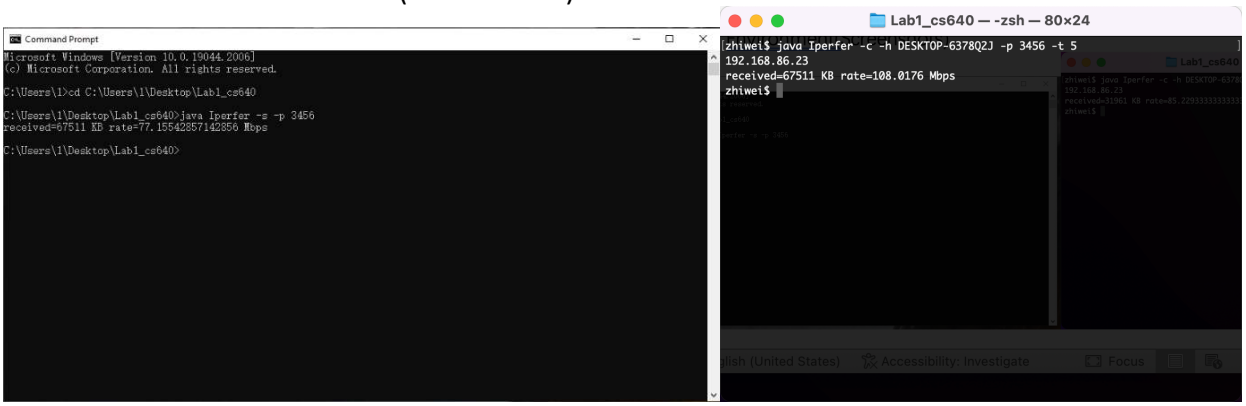
Part 1 - Wired Environment (Screenshots)



Pat1 throughput assumption between wired and wireless environment:
The throughput should under wireless environment be less than wired environment. Cable can transmit the data by the speed of light, but the wireless environment has inevitable loss of speed during the transmission.

Part 1 - Wireless Environment (Screenshots)



Part3 -Q2 Predictions:
The total latency should be L1+L2+L3 = 83.4 + 22.9 + 42.8 = 149.1 ms
The total throughput should be the min(L1, L2, L3), which is L1, about 21 Mbps

Part3 -Q2 Results:
The latency result is 145.7 ms which is fairly close to what I predicted before. That's because the latency should be summed up together since each part of the network contributes to it.
rtt min/avg/max/mdev = 145.742/154.979/212.286/12.519 ms
The throughput result is 21.8 Mbps. I think that's acceptable and close to my prediction as well. The throughput in a network depends on the slowest connection.
eceived=80774 KB rate=21.53973333333333 Mbps

Part3 – Q3 Predictions:
The latency should be just fine when the network is shared by two pairs of hosts and remains when shared by three pairs.
The throughput would be shared by pairs of hosts.

Part3 – Q3 Results:
The latency result is unchanged. That's because we were sending one bytes a time and that doesn't make any difference.
rtt min/avg/max/mdev = 143.234/144.729/142.170/1.321 ms
The throughput result is 7.371 Mbps since the bandwidth is shared.

Part3 – Q4 Predictions:
The latency might not be changed. The throughput of each pair will decrease, because the they all pass the L2 which affect the speed.

Part3 – Q4 Results:
Some switches (s2, h3)
h1 – h4: rtt min/avg/max/mdev = 147.482/157.290/210.894/13.963 ms
received=36087 KB rate=9.6231999999999999 Mbps
h5 – h6: rtt min/avg/max/mdev = 86.805/95.258/140.019/10.414 ms
received=55418 KB rate=14.7781333333333333 Mbps
These data make sense with a constant amount of rtt and decreased transmit rate. That't because the small amount of data being used for ping tests makes the latency result less likely to be affected by sharing the network route. And with partial bandwidth shared (L2), the average transfer rate is affected.